HW

Sect. 5.6 # 19-22, 33-35, 51, 53

Due Wed.

Sect. 5.5 # 37, 40, 43, 45

Due Thurs

5.4 #29

$$\tan(\theta+30) = \frac{\tan\theta + \tan 30}{1 - \tan\theta \tan 30} = \frac{\tan\theta + \frac{\sqrt{3}}{3}}{1 - \frac{\sqrt{3}}{3}\tan\theta} \quad \frac{\frac{3}{\sqrt{3}}}{\frac{3}{\sqrt{3}}}$$

$\frac{3}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$

$\frac{3}{\sqrt{3}}\tan\theta + 1$

$\frac{3}{\sqrt{3}} - \tan\theta$

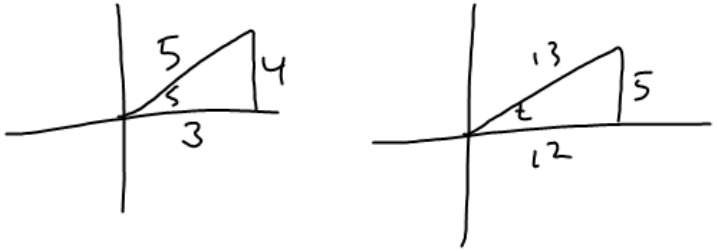
$= \dfrac{\sqrt{3}\tan\theta + 1}{\sqrt{3} - \tan\theta}$

$\frac{3\sqrt{3}}{3}$

$\sqrt{3}$

(41) in 5,4

$\cos s = \frac{3}{5}$ $\sin t = \frac{5}{13}$ QI



$\sin(s+t) = \sin s \cos t + \cos s \sin t$

$\frac{4}{5} \cdot \frac{12}{13} + \frac{3}{5} \cdot \frac{5}{13}$

$\frac{48}{65} + \frac{15}{65} = \frac{63}{65}$

$\tan(s+t) = \frac{\tan s + \tan t}{1 - \tan s \tan t} \Rightarrow \frac{\frac{4}{4} \cdot \frac{4}{3} + \frac{5}{12}}{1 - \frac{4}{3} \cdot \frac{5}{12}} = \frac{\frac{21}{12}}{\frac{16}{36}} \Rightarrow \frac{21}{\cancel{12}_{1}} \cdot \frac{\cancel{36}^{3}}{16}$

$\frac{63}{16}$

$\frac{36}{36} - \frac{20}{36}$

61 in 5.4

$$\frac{\cos(\alpha-\beta)}{\cos\alpha\sin\beta} = \tan\alpha + \cot\beta$$

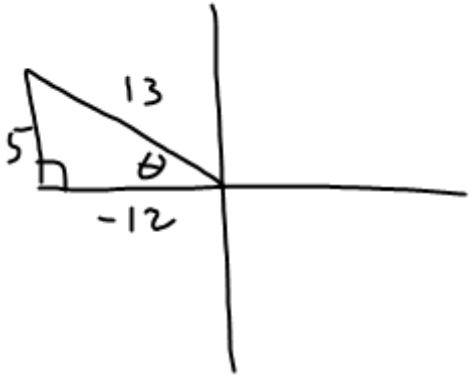
$$\frac{\cos\alpha\cos\beta + \sin\alpha\sin\beta}{\cos\alpha\sin\beta}$$

$$\frac{\cos\alpha\cos\beta}{\cos\alpha\sin\beta} + \frac{\sin\alpha\sin\beta}{\cos\alpha\sin\beta}$$

$$\cot\beta + \tan\alpha$$

12 in 5.5

$\cos 2\theta$ if $\cos\theta = -\frac{12}{13}$ $\sin > 0$



$\cos 2\theta = \cos^2\theta - \sin^2\theta$

$\left(\frac{-12}{13}\right)^2 - \left(\frac{5}{13}\right)^2$

$\frac{144}{169} - \frac{25}{169} = \frac{119}{169}$

29 in 5.5

$$\cos(3x) = \cos(2x + x) = \cos 2x \cos x - \sin 2x \sin x$$

$$(2\cos^2 x - 1)\cos x - 2\sin x \cos x \cdot \sin x$$

$$2\cos^3 x - \cos x - 2\sin^2 x \cos x$$

$$2\cos^3 x - \cos x - 2(1 - \cos^2 x)\cos x$$

$$2\cos^3 x - \cos x - 2\cos x + 2\cos^3 x$$

$$\cos(3x) = 4\cos^3 x - 3\cos x$$

18 in 5.5

$$\frac{2\tan 15^\circ}{1-\tan^2 15^\circ} = \tan(2\cdot 15)$$

$$\tan 30 = \frac{\sqrt{3}}{3}$$

#30 in 5.5

$$\sin(4x) = \sin(2x + 2x)$$

$$\sin 2x \cos 2x + \cos 2x \sin 2x$$

$$2\sin x \cos x \cdot (1 - 2\sin^2 x) + \text{same}$$

$$2\sin x \cos x - 4\sin^3 x \cos x + \text{same}$$

$$4\sin x \cos x - 8\sin^3 x \cos x$$